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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/525,842	03/15/2000	Kenneth A. Mikkelsen	2946	9234

7590 10/23/2002

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EXAMINER

BARRY, CHESTER T

ART UNIT

PAPER NUMBER

1724

DATE MAILED: 10/23/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/525,842

Applicant(s)

MIKKELSON ET AL.

Examiner

Chester T. Barry

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 8-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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Claims 8 – 11 are objected to for recitation of “wastewater” [sic, one word] whilst the specification as filed refers to “waste water” [sic, two words]. The art supports both spellings, but consistency within a given application is preferred. Of the electronically searchable US patents issued to date, 6,153 recite “wastewater” while over three times as many 19,337 recite “waste water.”<sup>1</sup> Accordingly, consistent with applicants’ original disclosure, amendment of each instance of “wastewater” to “waste water” in the claims is required.

Furthermore, each instance of “duration in which wastewater” should be amended to read, “duration during which waste water” to render more clear - albeit understandable as written – that it is during the predetermined time period that the waste water flow is directed, continued, or ceased.

Claims 8 – 11 are rejected under 35 U.S.C. Sec. 112, 2nd parag., for failing to particularly point out and distinctly claim the subject matter for which patent protection is sought. Claim 8 recites inter alia the step of exposing the wastewater to “alternating periods of aeration and mixing only.” It is unclear whether this limitation must be construed as: 1) exposing the wastewater to a first period of both aeration and mixing without any other significant processing step<sup>2</sup> taking place simultaneously (“aeration and mixing **only**”) which first period alternates with a subsequent second period during which neither aeration nor mixing takes place, wherein said first and second periods

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<sup>1</sup> Of the 23,421 patents which recited “waste water” or “wastewater,” fewer than 9% (2,069) recited both “wastewater” and “waste water.”

<sup>2</sup> It would appear that the continued addition of influent wastewater during the react fill phase would constitute a significant processing step.

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alternate; or 2) exposing the wastewater to a first period of aeration **only**, i.e., without any other significant processing step<sup>3</sup> taking place simultaneously therewith, and a subsequent second period during which **only** mixing takes place, i.e., without any other significant processing step<sup>4</sup> taking place simultaneously therewith, wherein the first and second periods alternate; 3) exposing the wastewater to a first period of at least both aeration and mixing followed immediately by a second period during which at least mixing takes place but during which aeration does not take place, wherein the first and second periods alternate; or 4) some other alternate processing steps take place. Correction is required. Please see at least page 11 last two lines of first paragraph<sup>5</sup> which appears to support the concept of "intermittent aeration while continuously mixing" or "continual aeration with continuous mixing."

In the third-to-last and fourth-to-last lines of claim 8, the recitation of ", and during this exposure to alternating periods of aerobic and anoxic condition; and the [waste water] is directed" cannot be understood with any reasonable degree of claim scope precision. Was "; and during this exposure to alternating periods of aerobic and anoxic condition, the [waste water] is directed" intended?

Per the mix fill phase limitation of claim 8, it is not clear if it is necessary for the waste water to flow into the vessel throughout the entire length of the "[mix fill phase] predetermined duration," or if it is sufficient for waste water to flow into the vessel at any time during the "[mix fill phase] predetermined duration" time period albeit lasting for

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<sup>3</sup> It would appear that the continued addition of influent wastewater during the react fill phase would constitute a significant processing step.

<sup>4</sup> It would appear that the continued addition of influent wastewater during the react fill phase would constitute a significant processing step.

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less than the entire duration. Similarly, whether it is sufficient for the waste water in the vessel to be mixed for a period of time during but not at every moment of the "[mix fill phase] predetermined duration." Moreover, it is unclear if the environment is controlled to provide an "anaerobic time period" only at an "initial" portion of the "[mix fill phase] predetermined duration," or if the "anaerobic time period" is necessarily coextensive with the "[mix fill phase] predetermined duration." That is, must phosphorus release and denitrification of oxidized nitrogen necessarily take place through the entire "[mix fill phase] predetermined duration," or is it sufficient for phosphorus release and denitrification of oxidized nitrogen to take place at any instant during the "anaerobic time period" which may not last as long as the "[mix fill phase] predetermined duration."

With respect to the react fill phase, along a similar line of reasoning and claim construction, it is not clear if waste water flow must continue through the entire length of the "[react fill phase] predetermined duration," or if it is sufficient to meet the claim limitation for waste water flow to continue into the vessel for at least a portion of the "[react fill phase] predetermined duration." Similarly, is it sufficient for there to be alternating periods of mixing with aeration and mixing without aeration at any time during the "[react fill phase] predetermined duration," or must such alternating take place through the entire "[react fill phase] predetermined duration" period?

It is unclear whether the waste water does not flow into the vessel at any time during the react discharge phase, or if it is sufficient that the waste water flow simply cease at any time during the react discharge phase predetermined period. Similarly, it

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<sup>5</sup> Line numbering would facilitate referencing specified passages of the disclosure, but is not required.

is unclear whether the waste water is exposed to alternating periods of aerobic and anoxic conditions throughout the entire period of the react discharge phase predetermined duration, or if one cycle of such alternating aerobic/anoxic conditions at any time during the react discharge predetermined duration would meet the claim limitation. Similarly, it is unclear whether the waste water is directed to the membrane device throughout the entire period of the react discharge predetermined duration, or if said direction at any time during the react discharge phase predetermined duration would meet the claim limitation.

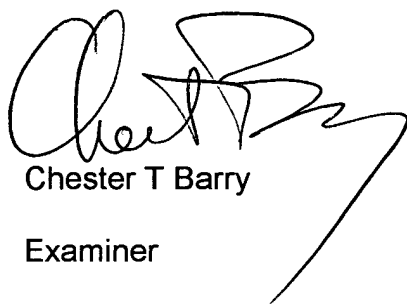
Further still regarding the react fill phase, and specifically with respect to claim 9, it is unclear whether the "[react fill phase] predetermined duration" period begins with a "mixing with aeration" period, or with a "mixing without aeration" period. That is, there is insufficient claim scope clarity regarding when the mix fill phase ends and the react fill phase begins. Claim 8 does not require that the react fill phase begin with aeration and mixing. If it did, then commencement of aeration would adequately indicate the end of the mix fill phase (which has no aeration going on) and the beginning of the react fill phase. Knowing when the react fill phase starts is critical in determining the 15 minute duration thereof recited in claim 9.

Similarly, because it is unclear from the react discharge phase whether that phase begins with an aerated or anoxic condition, and whether no waste water flows into the vessel or waste water is directed to the membrane device at all moments or only some portion of the react discharge phase, it is unclear when the react fill phase ends and the react discharge phase begins. For this reason, not unlike the problem

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with claim 9, it is unclear how the skilled artisan would know whether a given process has a react fill phase of 45 minutes as in claim 10, or a react discharge phase meeting the 60 minutes limitation of claim 11.

Metcalf teaches that the difference between SBR and conventional processes is simultaneous in same tank vs. sequential in different tanks.

A handwritten signature in black ink, appearing to read 'Chester T Barry', with a long, sweeping horizontal stroke extending to the right.

Chester T Barry

Examiner

10/18/02